One Health
The Future of Healthcare, Data Integration and Interoperability

Protecting Urban Aquatic Ecosystems

Standardizing Continuous Glucose Monitoring Data Exchange

Automating the Retrieval of Duplicate Remittance Advice

PLUS:
BPM+ Health Transitions into HL7 as HL7 BPM

Updates from FHIR Accelerators
**Executive Administrative Director Report**

**What’s Happening at HL7: Update from Headquarters**

It is hard to believe but we are almost halfway through 2024. It does seem like only yesterday that the new year was just beginning. But as the saying goes, time marches on.

**Highlight from the May FHIR Connectathon**

HL7 staff has just returned from the May WGM in Dallas, TX, and what a fantastic meeting it was.

As is typical, we started with the Connectathon on Saturday and Sunday. For those new to HL7 or unfamiliar with Connectathons, HL7 Fast Healthcare Interoperability Resources (FHIR) Connectathons feature hands-on FHIR development and testing. Implementers and developers come together to hold technical discussions that advance the FHIR specification, develop FHIR-based solutions, and exchange data with other FHIR interfaces. Connectathons are a great opportunity to work directly with FHIR developers and senior members of the FHIR standards development team. If you are a FHIR developer or implementer and never participated in this event, I highly recommend it. Connectathon are held before each of our three working group meetings each year and open to all who are interested. The May Connectathon drew a total of 358 participants who were active in 33 tracks. Of the 358 attendees, 53 were from outside the US. By all accounts it was a very successful event.

**The HL7 FHIR Foundry**

One of the highlights of the Connectathon was the announcement of the availability of the **HL7 FHIR Foundry**. The Foundry is the brainchild of the HL7 Implementation division with a goal of advancing the discovery, testing and implementation of HL7 FHIR specifications.

The Foundry currently offers two components, the Foundry Gallery and Foundry Hosting. The Gallery is a repository of open-source reference implementations (RIs) that are aligned with the HL7 FHIR Specification. Users can search by technology, role, description or domain. The Foundry Hosting component is an HL7-managed, cloud-based environment for hosting RI clients and services. It provides a centralized, living lab environment. Eventually, the Foundry is envisioned as the go-to resource for finding and experimenting with RIs, which can be used by everyone, including those with limited technical skills. See more about The FHIR Foundry in the article on page 12.

By Karen Van Hentenryck, Executive Administrative Director, HL7 International
**Highlights from the May Working Group Meeting**

A good starting place to recap the WGM is to provide a few statistics. We had a total of 410 attendees at the Dallas WGM with about a quarter of attendees from outside the US. In addition to the US attendees, we welcomed participants from Argentina, Australia, Austria, Belgium, Brazil, Canada, Denmark, Germany, India, Italy, Japan, Republic of Korea, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Arab Emirates and the United Kingdom.

**International Council Meeting**

The members of the International Council officially kicked off the WGM with a Sunday afternoon meeting. The group is comprised of the chairs of HL7's 42 affiliates around the world and they convene at each WGM to discuss the activities in their countries/regions, address challenges, and share ideas and suggestions.

Fifteen affiliates were represented at that meeting where Ron Parker provided an update on the International Council during the Monday general session, and covered the following facts:

- 41 Affiliates in Good Standing
- Bosnia - Herzegovina, and Pakistan lapsed
- Saudi Arabia re-engaging
- Pending Board Approval
  - HL7 Central America (first regional Affiliate)
  - HL7 Ecuador
  - AeHIN—Asian eHealth Information Network as second regional partner (after HELINA—Health Informatics in Africa)

Highlights from the International Council meeting in Dallas included the following Affiliate engagement activities:

- Peru is actively and energetically engaged
- Slovakia is looking for guidance and support establishing their affiliate
- Brazil is strongly represented at the May WGM and very engaged with the IC community and HL7 Executive

- International Council has an annual budget of $25,000 for support of Affiliate members. As of the May WGM, $17,000 has already been funded; $8,000 remaining will likely be committed before the September WGM

**Brazilian Ministry of Health Delegation**

A notable delegation from the Brazilian government attended and spoke at the HL7 Dallas Working Group Meeting. Led by Dr. Paula Xavier, General Coordinator of Innovation and Health IT in the Brazilian Secretariat of Information and Digital Health—the experts shared illuminating perspectives about Brazil's efforts in health care improvement and equity, digital health and interoperability and standards. HL7 FHIR was highlighted. As Chair of the Group of 20 (G20) in 2024, Brazil is at the center of health, economic and technology discussions related to their theme of “Building a Just World and Sustainable Planet.”

Others from the delegation who were in attendance included:

- Ministry of Health / SEIDIGI (Secretariat of Information and Digital Health)
  - Eng. Blanda Mello - Interoperability Expert and FHIR Implementer
- Ministry of Health / Resources by the Excellence Hospitals Program
  - Beatriz Leão - Project Coordinator (IPS, Terminology Servers, Health Infoway - RNDS)
  - Jussara Roetsch—Consultant
  - Italo Macedo (He is also HL7 Brazil technical lead)

*Continued on page 4*
What’s Happening at HL7: Update from Headquarters

While she was not able to attend in person, Dr. Ana Estela Haddad, Full Professor University of São Paulo, DMD, PhD; Secretary of Information and Digital Health, SEIDIGI (Secretariat of Information and Digital Health, Ministry of Health, Brazil provided a virtual keynote on Monday morning to the WGM attendees on Interoperability Innovation, Digital Health and the G20.

Guilherme Zwicker Rocha, MD, and Chair of HL7 Brazil, and the delegation from the Brazilian Ministry of Health held several meetings throughout the week, including addressing the HL7 Board on Monday, meeting with the Executive Leadership Team on Monday evening and providing a Birds of a Feather session on Tuesday evening.

Many thanks to Ticia Gerber, Alix Goss and Guilherme Zwicker Rocha for their part in coordinating the Brazilian Delegation’s attendance and activities in Dallas.

First-time Attendee Program and Free Educational Sessions

Many thanks to Sadhana Alangar, PhD, HL7’s Director of Education; Daniel Bach, HL7 Community Manager; and the Education Advisory Council for organizing a very successful first-time attendee program at the Dallas WGM. We had a record-breaking 184 first-time attendees in Dallas, so the launch of this program was very fortuitous.

While HL7 is a wonderful and welcoming community, we understand that navigating your first WGM can be extremely challenging and a little bit intimidating. The program addressed these challenges by assigning first-time attendees to a mentor, providing an orientation session Monday morning, and visiting several work groups to experience first-hand how they operate. They also provided tables at the general session and lunch for new attendees to sit together and with their mentors to learn more about each other and the organization. We provided a space near the registration desk where new attendees could gather, rest, and socialize with other new attendees and mentors and learn the ropes.

Many thanks to our mentors: Matt Blackmon, Gora Datta, Diego Kaminker, Virginia Lorenzi, John Moehrke, Iryna Roy, John Ritter, David Pyke, Ward Weistra, Line Saele, and Peter Jordan for assisting with the first-time program. Your efforts are very much appreciated.

In addition to the first-time attendees’ program, we offered free educational sessions during the WGM for all registered attendees. These educational sessions are designed to help new and experienced community members alike come up to speed on the standards and various other initiatives within the organization. We heard nothing but good things about these educational sessions and will continue to offer them at the WGMs.
HL7’s AI Initiative

Like most organizations, HL7 is exploring AI, including opportunities and responsibilities. This is a Board-led initiative under the direction of Dr. David Bray, but spans across the organization. HL7 CEO Dr. Chuck Jaffe’s address to the WGM attendees during the Monday morning general session outlined some of those opportunities, and our approach to and objectives related to AI for 2024 are aligned entirely with the ability of HL7 to substantiate financial support and to leverage available human resources.

HL7 is collaborating with relevant strategic partners in the AI space, including CHAI (Coalition for Health AI), HAIP (Health AI Partnership), and AIMI (AI in Medicine and Imaging). Dr. Jaffe outlined for WGM participants the five opportunities that the HL7 AI taskforce sees for collaboration:

**Provenance:**
Extend HL7’s existing standards framework to facilitate traceability of inputs and outputs in healthcare services delivery.

**Communication specifications:**
Extend HL7 standards framework to facilitate interoperable communication of systems, data sets, and AI models used in producing outputs within a healthcare environment.

**Terminology specifications:**
Establish standards enabling AI creators to transparently describe and AI users to consume the unambiguous AI development processes, content, and management.

**Fraud detection & prevention:**
Establish a framework of additional identifiers for each FHIR Resource to specify the source as well as source of health information attesting to the authenticity of data sets or outputs generated during healthcare documentation.

**Implementation Guide enhancement:**
Extend HL7 standards framework to enable GenAI-powered creation and compliance of HL7 Implementation Guides, including the development of Reference Implementations.

HL7 is actively exploring two of those opportunities by creating the following taskforces:

- **Provenance**, chaired by David Bray, Dan Vreeman, and Diego Kaminker.
- **Fraud detection & prevention**, chaired by David Bray, Janet Marchibroda, and Andy Truscott.

To help kick off these taskforces and get a sense of the wider community’s activities in the AI space, WGM attendees were invited to attend a special luncheon session on Wednesday to share their activities in this area. As you can imagine, this session was very well attended and the amount of activity in the AI space is impressive. Since the WGM, HL7 has reached out to the work group co-chairs, affiliate chairs, and FHIR Accelerator Program managers to ask them to summarize their AI activities so that we can coordinate efforts across the organization. You will no doubt be hearing more about HL7’s AI efforts in the coming months.

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What’s Happening at HL7: Update from Headquarters

FHIR Community Process (FCP) and the FCP Coordination Committee

Grahame Grieve, HL7’s FHIR Product Manager, and Reuben Daniels, HL7’s Deputy FHIR Project Manager, updated WGM attendees on the FHIR Community Process (FCP). The FCP provides best practices for those in the FHIR Community who wish to develop and publish IGs that are not balloted through the HL7 work groups. The FCP establishes a framework and best practices for developing/publishing these guides with the goal of ensuring interoperability and reducing duplication and market confusion that can result without a framework and best practices. The FPC establishes requirements for (1) participants (2) projects and (3) specifications. It includes criteria such as openness, consistency and collaboration with the wider community as well as the requirement for documentation that describes how to participate, how issues will be resolved and how the resulting guide will be copyrighted and licensed.

Approved FCP participants, projects and specifications will be added to HL7 maintained FCP registries and given authorization to use the associated FCP Icons.

The FCP is governed by the FCP Coordination Committee, which is tasked with:

- Defining and maintaining the FCP Requirements
- Assessing and approving applications for FCP Participants, Projects and FCP Specifications
- Managing the FCP Registries
- Authorizing local FCP coordination committees (e.g. in HL7 affiliates) to assess and approve FCP applications
- Monitoring the ongoing success of the process

We are actively recruiting FCP members. Those who are interested can send email to: fhir-director@HL7.org or express your interest via the Zulip channel: https://chat.fhir.org/#narrow/stream/427345-FCPCC

More information about the FCP is available at https://hl7.org/permalink?FCPRequirements

BPM+ Joins the HL7 Family

On Tuesday, May 21, the HL7 Board approved the transition of BPM+ to HL7. Ken Rubin provided more information about this transition during the Wednesday morning general sessions. This group is:

- Focused on computable clinical pathways and guidelines
- Allows for human and machine-readable expression
- Advances learning health systems, high-reliability organizations, consistent care practices
- Highly complementary with FHIR
- Develop process models, which are diagrams illustrating flow, actions, and decisions that express business requirements. These diagrams are less ambiguous than narrative requirements and provide a functional complement to FHIR.

The BPM+ group is already collaborating with several work groups and has participated in the last three Connectathons. For more information, please see the article on page 18.
Collaboration with openEHR

Another exciting development during the WGM was a joint decision by openEHR and HL7 to consider aligning some of our standards and specifications for the global good. Both organizations recognize that aligning efforts would be beneficial to the global digital health ecosystem, and to openEHR, HL7 and the communities that participate in them. There are several challenges and no official agreement in place for this collaboration, but both organizations are committed to exploring what we should and can do to align at least some of our work. A statement was issued jointly by HL7 and openEHR, and is available here. More details on this collaboration will be provided as they become available.

Recognizing Mark McDougall

As most of the community is aware, Mark McDougall retired from HL7 on December 31, 2023 after 32 years of service to the organization. Since his retirement was announced after the September 2023 meeting and our January 2024 meeting was virtual, we invited Mark to the May WGM to recognize and show our appreciation in person for his many years of service and to wish him well in his retirement. Mark’s “retirement party” was held during the Wednesday evening reception. Ed Hammond, who was instrumental in hiring Mark many years ago, shared several decades of memories working alongside him. Mark also shared his memories over the last three decades. Members of the HL7 community were invited during the week to sign and share a message with Mark in a memory book that was presented to him during the Wednesday evening reception and to enjoy a cake that was purchased for the occasion. Following the reception, I took Mark, his wife Shelly and several members of his former staff to dinner so that we could enjoy one last evening together. We wish Mark and Shelly all the best in the coming years.

General HL7 HQ Updates

With so much activity at the WGM, it is easy to overlook all the other work being done by the staff, so I’d like to bring the community up to date on the non-WGM activities.

- **Linda Jenkins**, our director of membership, Pat Guerra, our director of marketing, and Daniel Bach, HL7’s community manager, are creating a new member orientation program. Just like the first-time attendee program noted above which orients new attendees to the WGMs, we’ve recognized a need for a program that onboards new members. We’re hoping to launch this program in September.

- **Sadhana Alangar**, our director of education, has been working with the education advisory council to establish HL7’s credentialing program and to build our certified Educator and Education Partner programs.

- **Mel Stewart** provides marketing for our educational offerings and is working on the summer CMS Connectathon.

- **Andrea Ribick**, our communications director, **Pat Guerra, Mel Stewart, Laura Mitter** and **Dave Hamill** are working to integrate HubSpot with Fonteva (our new CRM) to provide more efficiency in our communications and marketing programs. Additionally, the marketing/communications team is starting to work with HL7 Europe to assist with developing marketing plans and websites for our affiliates.

- Increasing competency with Fonteva is a major goal for staff across the board this year, and **Laura Mitter** has stepped up to fill a much-needed Fonteva Administrator role. She spent four months in training and hands-on work with **Josh Procious** to learn the inner working of Fonteva, which will take some load off Josh Procious, who has been filling this role almost single-handedly for several months.

- **Lynn Laakso** continues her work to ensure that ballot process runs smoothly, and she, too, has improved her skills with Fonteva and is helping me provide support to the HL7 Executive Committee and Board.

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What’s Happening at HL7: Update from Headquarters

• Like many organizations, HL7 has faced an increase in cybersecurity activity since the beginning of the year. Our tech team, led by Eric Schmitt, has risen to the challenge and installed a WAF and shield to protect against the many denials of service attacks that have been launched against Confluence, Jira and the website and our other assets. In addition, the tech team, comprised of Josh Procious, Jon Williams and Chad Neale, worked diligently to stabilize our very old listserv manager and are planning a rollout of a new listserv manager in the coming months. Josh continues to install Confluence upgrades and monitor Confluence/JIRA downtime and provide support for Fonteva. Chad provides backend programming on the website and other programs such the ballot and election sites that pull data from Fonteva. Jon Williams provides general tech assistance to staff and manages the listservs. Many of these activities occur in the background but are essential to the smooth operation of our organization.

• Holli Murphy has taken over much of the Accelerator support and made several improvements that make tracking SOWs and contracts easier.

• Our controller, Nagham Sabah, has made several improvements to our accounting department, including moving from a manual time tracking system to ADP, and getting our payroll up and running during the transition. She’s also working with the finance committee, staff and Executive Leadership Team to develop a more structured and data-drive approach to annual budgeting.

• Jodi Connor, our accounting specialist, has greatly improved our accounting processes, including helping to standardize AR/AP processes for Accelerators.

• Dave Hamill, director of the PMO office, has managed a project to document our business processes and continues his work with the ONC grants and with tracking the WG projects. He also serves as a liaison to Fonteva.

• Anne Wizauer continues her exceptional support to the TSC and most of the management groups. She’s also begun work toward getting PMP certification and is in the process of updating our HL7 Essentials page on Confluence and the Co-Chair Handbook.

• Rebecca Parsons manages several projects for our Chief Standards Development Officer, including contracts with ONC, WHO and other organizations. In addition, she provides support to the JIC.

• Daniel Bach continues to delve into the inner workings of our community and discover their needs and motivations. He’s been instrumental in helping us reach new audiences and keep our current community satisfied with their participation.

• In addition to supporting the staff above in their roles, I’ve been working with the other members of the Executive Leadership Team to get the HL7 FHIR Foundation up and running. After several months of waiting, we finally received notification from the IRS that the FHIR Foundation has been approved as a supporting organization to HL7. This means that the Foundation can accept grants and other funds that benefit HL7 International and on a tax-deductible basis for the funder. There is still much work to be done before the HL7 FHIR Foundation opens its doors for business, but we’re working to make that a reality in the next several months.

We are always happy to receive member and community input on the work we do here at HL7. Please feel free to contact me at Karenvan@HL7.org should you wish to provide feedback or suggestions.
HL7 Standards Published Since March 2024

March 2024

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Upcoming Meetings

- **38th Annual Plenary, WGM+ and HL7 FHIR Connectathon** will be held September 21-27 in Atlanta, GA. Last year, HL7 introduced the concept of the WGM+, which is content beyond the typical standards development work that occurs at our WGMs. The WGM+ portion of the meeting will occur all day Monday and through lunch on Tuesday. The theme is Building Futures, Bridging Borders: the Intersection of AI and Global FHIR Innovation. The WGM+ content will also include a FHIR Apps Roundtable, which is always fun! The typical Work Group standards development content will take place Tuesday after lunch through Friday afternoon. We hope to see you there.

- **January 14-16, 2025—Virtual Connectathon**
- **January 27-30 2025—Virtual WGM**
- **May 10-16 2025—WGM in Madrid, Spain.** Mark your calendars now for this very special event. HL7 Spain Chair, Paco Perez, provided a first taste of Madrid during our Dallas WGM. He’s set up to special pages for HL7 Members:
  - www.hl7goestomadrid.com
  - www.madridonfhir.com
  - Watch the Madrid video
  - For more information on this event, contact presidente@HL7spain.org or fperezfernan@gmail.com

I look forward to seeing everyone again in Atlanta.

—Karen Van Hentenryck
ONC Grant Funded Project Updates

News from the HL7 Project Management Office

C-CDA and FHIR Maturation Grant
Work continues on The Office of the National Coordinator for Health Information Technology (ONC) current $1.5 million cooperative agreement for continued maturation of the Consolidated Clinical Document Architecture (C-CDA) and Fast Healthcare Interoperability Resources (FHIR) standards which encompasses the following goals and projects, many of which are still underway:

**Goal 1: Facilitate ongoing development and publication of HL7 standards for the benefit of the general public by the following:**
- Develop an implementation plan including objectives, strategies, and approaches
- Monitor and identify interoperability needs and priorities
- Facilitate standards development and balloting cycles with an emphasis on the following:
  - FHIR Bulk Match
  - International Patient Summary (IPS)
  - SMART Health Links
  - Reference implementation software for HL7 specifications
  - C-CDA authoring and web-publication tooling
  - At Home Test Results implementation guide
  - FHIR profiles on Bundle and Composition to align with CDA
  - FHIR R6

**Goal 2: Enhance the underlying HL7 tools and infrastructure necessary to support effective implementation and use HL7 standards as follows:**
- Maintain and enhance Unified Terminology Governance (UTG) and terminology services for standards development
- Produce and publish the 2024 C-CDA Value Set Release Package
- Enhance FHIR build and IG publishing infrastructure
- Implement Jira Dashboard Templates

**Goal 3: Empower the HL7 standards development community with the following:**
- Convene two C-CDA Implementation-a-Thon (IAT) events

**HL7 Public Health Standard and Solutions for Future Pandemics Cooperative Agreement**
In addition to the above, work will conclude in September on ONC’s 4-year $2M cooperative agreement titled “HL7 Public Health Standards and Solutions for Future Pandemics”. Projects under this endeavor include the following:
- Review existing HL7 Provenance standards and artifacts; provide recommendations of “Authorship” in provenance records and supporting “Full Provenance”
- Update, ballot and publish the PDMP HL7 FHIR Implementation Guide
- Plan, prepare, facilitate and provide a 2-day virtual FHIR Security Event in 2023 and 2024
- Develop and publish a FHIR Security Checklist
- Create awareness about open-source software communities using FHIR via a virtual webinar series.
- Update, ballot and publish the electronic Long-Term Services and Supports (eLTSS) implementation guide (Complete)
• Progress the work to define a CDA template and an Implementation Guide (IG) for eyecare professionals needing to share information (Complete)

• Advance the use of HL7 Bulk Data Access API and other relevant standards-based API technologies to improve surveillance capacity for future pandemics and other public health emergencies by assessing available open-source natural language processing (NLP) tools which unlock high-value information contained in the text of clinical notes (Complete)

• Provide HL7 FHIR Technical support to the Helios FHIR Accelerator (Complete)

• Testing of the Gravity SDOH Clinical Care FHIR Implementation Guide (Complete)

• Gravity SDOH Clinical Care FHIR Implementation Guide Standard for Trial Use 2 Publication (Complete)

• Gravity Pilots Affinity Group Support (Complete)

• Analyze and document which HL7 Version 2 messaging standards or FHIR IGs, resources and profiles can be used to support submission of test results from at-home COVID testing applications to state and federal government agencies (Complete)

• Support development, advancement, and harmonization of Social Determinants of Health (SDOH) standards by analyzing the current state and emerging activities of SDOH related data (Complete)

• Expanding the clinical domains supported by HL7 standards by balloting the COVID-19 FHIR Profile Library implementation guide (Complete)

• Improve the privacy and security of health information by examining the current landscape of relevant security, privacy, and public health standards (Complete)

• Advance HL7 Public Health Standards by developing and publishing a Physician Orders for Life-Sustaining Treatment (POLST) CDA implementation guide (Complete)

COVID-19 support for Accelerating Standards Development for the US Realm

Lastly, ONC’s 5-year (Fiscal Years 2021-25) $3.5M contract “COVID-19 support for Accelerating Standards Development for the US Realm” continues with the following work:

• Ballot, reconcile and publish annual updates to HL7’s US Core implementation guide

• Financial support for the US Realm Steering Committee (USRSC) Project Manager, Senior Advisor, Content Administrator and Dashboard Developer

• Fund Helios, HL7’s FHIR Accelerator for Public Health

• Update, ballot and publish the Consolidated CDA (C-CDA) specification using Trifolia-on-FHIR, FHIR StructureDefinitions, and the FHIR Implementation Guide tooling stack

Progress for all the above ONC work can be found on HL7’s Confluence page at:
https://confluence.hl7.org/display/PMO/ONC+Grant+Project+Page.

HL7 appreciates ONC’s continued support of C-CDA and FHIR since 2016.

Subscribe to Receive Request for Proposals from HL7

If you're interested in receiving Request for Proposals (RFPs) issued by HL7, be sure to subscribe to contractwork@lists.hl7.org (commonly referred to as the “Contract Listserv”).

Once subscribed, you'll receive RFPs issued by HL7 along with updates as the contracts are awarded. To subscribe, log into www.HL7.org > My HL7 > My Listservs and follow the prompts.
HL7 News

HL7 is pleased to announce the launch of the HL7 FHIR Foundry, a unique platform designed to advance the discovery, testing, and implementation of HL7 FHIR® (Fast Healthcare Interoperability Resources) specifications.

The FHIR Foundry, part of HL7’s strategic plan to enhance global health interoperability, is an open ecosystem platform that offers a centralized, user-friendly environment for developers and implementers worldwide.
“The HL7 FHIR Foundry represents a major leap forward in supporting the international health IT community by providing a centralized, and user-friendly platform for FHIR specification discovery, trying, and testing” said Diego Kaminker, HL7’s deputy chief standards implementation officer. ”

The Foundry empowers implementers around the world to engage with FHIR standards in a practical and scalable way. This will accelerate innovation, enhance interoperability, and ultimately improve healthcare outcomes globally.” The FHIR Foundry consists of two key components: Foundry Gallery and Foundry Hosting. This integrated environment builds on the success of FHIR sandbox environments, providing robust support for the global community of FHIR implementers.

Foundry Gallery is a comprehensive repository of open-source reference implementations (RIs) aligned with HL7 specifications. It allows users to:

- **Discover**: Easily search for projects by technology, role, description, or domain. For example, users can explore how FHIR can be applied to genomics or manage provider registries.
- **Try**: Utilize client RIs to understand the practical implications of FHIR implementations, facilitating learning and reuse of source code. Users can use client RIs to assist with understanding the practical implications of FHIR implementations and to assist with learning and reuse of source code.
- **Test**: Leverage RI servers to validate client applications against known working instances.

Foundry Hosting is an HL7-managed, cloud-based environment for hosting RI clients and servers. It ensures:

- **Availability**: A centralized, living lab environment.
- **Scalability**: Flexibility to match demand.
- **Integration and Deployment**: Shared services/automatic local implementation.
- **Consistency**: Adherence to standard practices for RI development.
- **Maintainability**: Continuous integration and deployment connected to GitHub and Docker Hub.

The anticipated outcomes of the HL7 FHIR Foundry are significant. First, it will become the go-to resource for finding and experimenting with reference implementations, accessible to all, including those with limited technical skills. This will enhance outreach and discovery, making it easier for a wider audience to engage with FHIR standards. The Foundry will also enable continuous testing beyond FHIR Connectathons and dedicated events, allowing implementers to test client applications and servers using robust sample data at any time. Finally, HL7 standards development will evolve to include the deployment of reference implementation software as part of quality assurance and publication processes, thereby increasing the rigor and reliability of standards development.

Skycapp, a leading provider of healthcare software solutions and implementation services dedicated to improving patient care, optimizing workflows, and advancing outcomes with a full-stack commitment to standards and interoperability, contributed the underlying delivery platform for HL7 FHIR Foundry.

“I’m beyond elated to support HL7 FHIR Foundry,” said Dr. Preston Lee, CTO of Skycapp. “Since I began formulating the ballot specifications and operating model for a standards-based, global health IT supply chain ecosystem over a decade ago, my passion has been bringing pragmatism to healthcare interoperability through automation and accessibility. Launching HL7 FHIR Foundry as a centerpiece for implementers needing to understand and integrate standards marks a new era of adopter-focused value, and one I’m confident will open the door to many novel and disruptive uses.”

**How to Access the HL7 FHIR Foundry**

The HL7 FHIR Foundry Gallery can be accessed at the following link: [https://foundry.hl7.org/](https://foundry.hl7.org/)

If you are interested in hosting your open-source reference implementations in the HL7 FHIR Foundry Hosting service, please contact Karen Van Hentenryck (karenvan@hl7.org) ■
Aquatic ecosystems play a critical role in creating diverse habitats and supporting biodiversity and ecosystem systems vital for life on Earth. Unfortunately, pollutants often contaminate aquatic urban ecosystems, leading to space decreases and threatening ecosystems, which leads to poor health conditions for humans, animals and plants.

The European Union (EU) funded OneAquaHealth (OAH) project [2023–2026] aims to improve the sustainability and integrity of freshwater ecosystems in urban environments. The project will support decision-makers in finding adequate and timely decisions as well as effective measures to restore aquatic ecosystems’ health and promote OneHealth, which is a collaborative, multisectoral, and transdisciplinary approach that aims to achieve optimal health outcomes by recognizing the interaction between people, animals, plants, and their shared environments.

Background
The OAH HL7 team will be leveraging the FAIR: Findable, Accessible, Interoperable, Reusable (FAIR) Criteria. These criteria emphasize machine actionability, which is the capacity of computational systems to find, access, interoperate, and reuse data with no or minimal human intervention. The project will follow the OAH perspective of ethical excellence to provide a FAIR approach to emerging risks to environments and health in transforming urban Europe. HL7’s expertise in this area will allow them to contribute to the FAIR criteria to improve data collection, storage, and analysis to support public health-related policymaking.

Deliverable
One area the HL7 team will work on for the project is leading the OAH standardization efforts. This will focus on standardization activities that will be carried out to promote the OAH project results. The objectives are to conduct standardization related workshops and webinars, identify digital health standards that may impact OAH, and explore potential OAH standards. The workshops and webinars will cover topics such as well-being, mental health, urban ecology, and the restoration of aquatic ecosystems. Because HL7 standards can play a role in this project, the HL7 team will identify digital health standards that impact OAH to determine specific issues that require standardization. Lastly, potential OAH standards will be considered using HL7, IEEE SA, and ISO/TC 215 standards.
HL7 proposes to leverage the HL7 FHIR Accelerator program and several relevant HL7 standards for the project. Relevant programs include the Social Determinants of Health (SDOH) Gravity Accelerator, Public Health Helios Accelerator and relevant HL7 implementation guides, and International Patient Summary Project would also be considered. The SDOH Gravity accelerator aims to standardize SDOH-related codes to facilitate the use of SDOH-related data within healthcare and other sectors. Social care data standards are necessary because they establish a shared understanding of critical concepts, data visibility, and a common agreement and methods for exchanging information within communities to allow for analysis and upstream structural interventions.

The potential OAH standards may involve adding attributes to existing FHIR resources or developing a new OAH FHIR resource and developing an OAH HL7 FHIR Implementation Guide.

**Potential OneAquaHealth Standards**

- **OAH HL7 FHIR Resource Attributes**
  FHIR resources are building blocks designed to be easily shared. They are comprised of a standardized structure, including attributes and relationships. The FHIR resource design aims to enable interoperability using well-structured data models and efficient exchange mechanisms. It is envisaged that certain OAH specific FHIR attributes may need to be developed to support OAH data interoperability across the ecosystem.

- **OAH HL7 FHIR Implementation Guide**
  FHIR profiles define how a specific FHIR resource should be used, extended, or constrained in a particular context or implementation. They are a useful tool for customizing and specializing FHIR resources to meet the specific requirements of a particular organization, project, or use case. A FHIR implementation guide (IG) is a set of instructions for implementing the FHIR standard in a specific healthcare context. An IG is a roadmap for healthcare stakeholders that want to adopt the FHIR standard and leverage its advanced data exchange capabilities. FHIR IG is a type of FHIR profile. It is also envisaged that there may be a need to develop an OAH FHIR IG once the OAH project artifacts have been developed. It must be recognized that the standards development life-cycle may extend beyond the life-span of OAH project.

**At the HL7 May Working Group Meeting**

At the May 2023 HL7 Working Group Meeting, the Mobile Health Work Group hosted a session where the OAH HL7 team introduced the project to the HL7 Mobile Health Work Group members and offered insights on how HL7 standards, such as FHIR, may contribute to the OAH project.

On January 1, 2024, HL7 Europe hosted an exciting workshop on *OneAquaHealth: Linking Urban Aquatic Ecosystems and Human Health*. The workshop explored the benefits of environmental observations and how they can help address OneHealth challenges.

**Conclusion**

The deliverable is currently in the early stages of the project. Therefore, it is premature to recommend any standards. The HL7 OAH team plans to provide potential standards guidelines for the project and to outline potential pathways to relevant standards for OAH.

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One Health: The Future of Healthcare, Data Integration and Interoperability

As part of the Global Passport and Policy Series, HL7 hosted a webinar on the innovative concept of One Health. Entitled Everything is Connected: One Health and HL7® FHIR®, this virtual session engaged over 450 interested participants, examining how One Health is an important, emerging way to look at and tackle healthcare challenges around the world.

The World Health Organization (WHO) defines One Health as “an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems. It recognizes that the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent.”

One Health requires innovative new collaboration across sectors and disciplines worldwide and is a key part of the global health and security agenda. HL7 standards and products—such as HL7 FHIR—are also embedded in this landscape and making a real difference.

Global digital and One Health experts who spoke during the webinar include:
- Ticia Gerber, MHS/HP, HL7 Global Director of Policy and Partnerships (Moderator)
- Soyean Kim, Head of Products, Centre for Infectious Disease Genomics and One Health (“CIDGOH”), Simon Fraser University
- Pilar Hernández, PhD, Managing Director, Business Development & Projects, SORMAS
- Jan Böhme, Managing Director, Technology & Operations, SORMAS
- Titus Schleyer, DMD, PhD, Professor of Biomedical Informatics, Research Scientist, Regenstrief Institute

Speakers highlighted topics during their One Health talks such as:
- One Health Overview
- Role of One Health in public health and genomics
- One Health, HL7 and FHIR
- One Health Integration in digital tools for surveillance and outbreak management
- Innovative Lower- and Middle-Income Country (LMIC) and One Health implementations
- Integration of Electronic Health Record (EHR) and environmental data in One Health
- Perspective on how HL7 and other SDOs can help One Health progress.

How to Access the Recording

The HL7 Everything is Connected: One Health and HL7 FHIR webinar recording and speaker slide decks are all publicly available and free to access. We encourage you to do so. Information and links are below.

Webinar Recording: https://hl7-org.zoom.us/rec/share/BwoqfuKz3Rx4uhIeJ1w-pGr_mj2SKcaelsOnXf8_3JlnDv_4etJ3q9hr3uaXXM.0fwvUL8s4m3ZPy9o?startTime=171206632000

Webinar Powerpoints: https://www.dropbox.com/scl/fo/ikmjqvhi6n4vsnarmr5ha/h?rlkey=pj3r8rf2ie8khnyvlmiv7xmx6&dl=0

Additional Global Passport Series webinars are planned for Fall 2024. The latest updates can be found at: https://info.hl7.org/2024-global-passport-series

This informational avenue supports HL7’s global footprint and increased international policy activities.

By Ticia Gerber, Global Director, Partnerships and Policy, HL7 International

If you have questions or are interested in being a speaker for a future Global Passport Series event, please contact Ticia at tgerber@hl7.org
## 2024 State of FHIR® Survey Results

HL7 International and Firely collaborated again in 2024 to conduct this important survey to better understand the widespread adoption and depth of FHIR usage across the world. Additionally, the survey aimed to identify barriers to adoption. To keep the global FHIR community informed and engaged, the survey results were shared at HL7 FHIR DevDays 2024.

Learn about the widespread adoption and depth of HL7® FHIR® usage, as well as the barriers to adoption, in this important global study report. For more case studies featuring innovative use of HL7 standards visit our case study library.


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Data access, portability, and use within our health sector is of paramount importance, and the emergence of HL7 Fast Healthcare Interoperability Resources (FHIR®) as the preferred, if not ubiquitous, standard for representing that information has been a dramatic step forward.

That said, arguably the most important use of that data is in support of care processes—informing what actions need to be taken, fueling conversations and decisions between care team and patient, and affecting wellness and interventional activities.

By Shane McNamee, MD, Community Lead, HL7 BPM; and Ken Rubin, Community Coordinator, HL7 BPM
HL7 BPM is focused on the applied use of open standards to represent and model processes and care pathways, complementary with FHIR, to advance process agility, automation, care quality, and care consistency. Originally chartered as the BPM+ Health community under the Object Management Group® (OMG®), BPM+ Health transitioned into HL7 during the Dallas May Working Group Meeting (WGM) with the unanimous approval of the HL7 Board, and will operate as the HL7 BPM Community.

From the beginning, the BPM+ Health family of standards has been structured to ensure compatibility and value-added capabilities with the existing HL7 FHIR, CQL®, and CPG on FHIR standards. The BPM+ open standards extend the HL7 family standards through the addition of process automation, orchestration and choreography capabilities to:

- Advance techniques to promote consistency in care delivery within healthcare delivery organizations across settings of care
- Foster a seamless patient care experience, even when that care spans institutions or care settings
- Improve organizational agility to adopt and deploy changing and emerging care practices
- Leverage commercial tooling and open standards in widespread use in many verticals but not well adopted within the health sector

While the details around our future operational construct within HL7 are emerging, the group is “open for business” and anyone with an interest in the topic is welcomed and encouraged to participate. There are multiple workstreams presently under HL7 BPM, spanning from authoring workflows to process automation to education to institutional/organizational adoption. Details about calls can be found in the HL7 International Call Calendar, and the group has a presence in the HL7 Confluence website.

The BPM+ Health activity was launched initially in 2016 as a group of Department of Veterans Affairs clinical informaticists, solution architects and industry leaders set out to solve the numerous challenges in automating & integration of clinical practice guideline automation into healthcare workflows. The community originally formalized in 2019 and has proceeded to:

- Co-sponsor three HL7 FHIR Connectathon Tracks
- Establish six committees along the process automation lifecycle
- Weave together six separate OMG standards for healthcare process automation
- Publish a Field Guide for Sharable Clinical Practices, numerous white papers & case studies
- Develop several “state of the art” demonstrations presented at HIMSS in the Interoperability Showcase

Now under HL7 governance, we believe that this work is ideally positioned to advance FHIR synergies, align with HL7 FHIR Accelerator programs, and better meet the challenges most affecting healthcare process interoperability. The coming months will focus on those synergies and operationally integrating into HL7, advancing and publishing best practices for process integration with FHIR, and strengthening connection points with the broader HL7 community. We will also be exploring opportunities to provide BPM education and experimentation tooling to the HL7 community and beyond.

Joint activities are underway with the Clinical Decision Support (CDS), Orders and Operations (OO), Orchestration, Services, and Architecture (OSA, formerly SOA) work groups, among others. Exploratory talks with several other work groups are beginning. We welcome the outreach and are happy to explore synergies. On behalf of the BPM community, we could not be more excited to be a part of HL7.

If you have interest or enquiries, direct them to our list, bpm@lists.hl7.org or our community points-of-contact below:

- Ken Rubin
- Shane McNamee
- Lorraine Constable
The Helios FHIR Accelerator for Public Health is a collaborative initiative including network organizations (QHIN, HIE, HIN), state, tribal, local, and territorial (STLT) health agencies, health information technology (HIT) vendors, local and federal public health agencies, and private sector organizations.

Its primary goal is to align with the widespread standardization and transformation that is happening around digital health data today to promote more flexible and effective data exchange between healthcare, the public and other sectors beyond public health.

By the Helios Program Management Team
Let’s delve into the key aspects of Helios:

**Purpose and Goals**

Helios addresses ongoing challenges in public health by ensuring that data modernization efforts incorporate market-based solutions and align with nationwide interoperability priorities. The alliance focuses on extending and adopting existing FHIR specifications in ways that are flexible, accurate, scalable, sustainable, and responsive. By doing so, Helios aims to keep public health needs at the forefront as FHIR standards evolve and are implemented nationwide.

**Why FHIR-Based Standards**

Public health operates across various levels of government and collaborates with multiple partners. This complexity often leads to coordination challenges around data. The HL7 FHIR community has successfully overcome similar obstacles and gained momentum in the United States. Helios aims to streamline adoption of FHIR-based solutions, while ensuring they align with other public health efforts.

**Symbolism Behind the Name**

The name “Helios” draws inspiration from ancient Greek mythology. Helios was the god of the sun, symbolizing transparency and healing. By adopting this name, the alliance emphasizes practical solutions that work in production, rather than theoretical concepts.

**AIM TO IMPROVE INTEROPERABILITY**

**Retrieve Patient Health Information From Electronic Health Records (EHR) Systems Using FHIR Query and Response**

Under the leadership of Angel Aponte (New York City), Bill Howard (eHealth Exchange), Jim Collins (Michigan Department of Health and Human Services), and Tina Hardin (JMichael Consulting), this priority area is working to demonstrate how the FHIR Query and Response paradigm can help meet high-priority public health needs efficiently and effectively, while also returning valuable and actionable information to care providers.

The goal is to leverage existing FHIR API support to assist public health in retrieving additional demographic and clinical information for case investigations. We are working closely with STLTs, HIT vendors and health exchange networks to test and collaboratively explore facilitated FHIR Query and Response operations to streamline data acquisition workflows for use cases like reportable conditions (e.g., sexually transmitted infections and other communicable diseases), newborn screening, and cancer registry.

**Make Data in Public Health Systems Available in Bulk**

Led by John Stamm (Epic), Leslie Lenert (Medical University of South Carolina) and Mary Beth Kurilo (American Immunization Registry Association), this priority area is exploring ways to enable authorized users of public health data to access complete, accurate, and timely information on their patient and member populations in bulk. As our first use case, we are exploring how Immunization Information Systems (IIS) can share immunization history in bulk with their trading partners.

The members of this priority area have come together at both in-person and virtual events to test many different aspects of exchanging data in bulk including the use of the Group Level Export operation to access immunization history data held by IIS, the application of the standard OAuth2 security and authentication requirements, bulk patient matching approaches and the creation and maintenance of cohorts of individuals. We are working with other HL7 FHIR Accelerators to identify shared technical solutions for common functional requirements.
Deliver Aggregate Information to Public Health

Spearheaded by Hans Buitendijk (Oracle Health) and Ravi Kafle (Washington Department of Health), this priority area aims to identify standardized and scalable ways of providing high-quality, timely, and on-demand summary data (e.g., bed count, supply inventory, and other sentinel indicator measures) in ways that lessen the strain on both healthcare and public health.

The goal is to provide aggregate data using FHIR-based solutions on healthcare resource capacity to prepare public health for efficient handling of emergencies and other events of public health importance.

Exploring Public Health Uses Cases and FHIR Solutions

The Helios Operating Committee (formerly known as the Align and Optimize Priority Area) is led by Michelle Barber (Oregon Health Authority) and Gillan Haney (Council of State and Territorial Epidemiologists). It explores unmet public health data exchange needs to identify potential FHIR-based solutions. This group is actively soliciting suggestions from the community for public health data pain points to discuss and explore how FHIR standards may be leveraged for accessing critical data.

STAKEHOLDER ROLES IN THE HELIOS FHIR ACCELERATOR

Developers, implementors and other stakeholders play a crucial role in advancing the goals of the Helios FHIR Accelerator.

Understanding Public Health Data Needs

Developers and implementors collaborate with public health agencies and their trading partners to better comprehend their specific data requirements. By actively participating in discussions and workshops, they assist participants in articulating their data needs effectively. These interactions provide valuable insights into the unique challenges faced by public health agencies, allowing for the development of technology solutions that align with real-world demands.

Demonstrating Optimal FHIR-Based Approaches

During Connectathon and weekly workgroup meetings, technology solution providers showcase FHIR-based solutions that align with public health needs. Developers and implementors demonstrate how FHIR standards can be leveraged to address interoperability challenges in public health. Their practical demonstrations bridge the gap between theory and implementation for efficient data exchange within the healthcare ecosystem.

Collaborating on Decision Frameworks

Helios members are actively developing decision frameworks to guide data modernization efforts. While developers contribute valuable insights into technical considerations, and practical implementation approaches, implementors actively participate in shaping these frameworks. Through collaboration, implementors ensure that decision-making processes are well-informed and aligned with public health goals.

Promoting Rigor and Compatibility

Public health subject matter experts (SME) collaborate with HL7’s Standards Implementation Division to ensure rigor, policy implications, transparency, and compatibility across the global FHIR community. By adhering to standards and best practices, SMEs contribute to the success of FHIR-based solutions in public health. Their commitment ensures that FHIR implementations remain robust, reliable, and compatible across the global healthcare community.
HOW TO JOIN HELIOS

Helios is currently recruiting organizations to actively participate in current discussions, future testing events and piloting efforts. There are no membership fees for participation in Helios, so there are ways for everyone to get involved!

Anyone can participate by:

• Bringing your public health interoperability pain points to our priority area team leads to learn what FHIR can do for you. FHIR offers new possibilities for public health, and we can help you understand how to address your current interoperability needs.

• Applying your FHIR tools to public health use cases at HL7 FHIR Connectathons and other Helios testing events. We need tool developers playing a wide range of roles in public health data exchange to help evaluate FHIR-based approaches and develop technical solutions.

• Talk to your colleagues and technical teams about how to take the next step towards piloting a real-world solution.

If you are ready, willing, and able to help drive forward public health interoperability in these areas, please reach out to us at helios@hl7.org to become part of our team!

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—Sarah Gaunt, Senior Information Analyst / Health Informatician, Lantana Consulting Group

Learn more! Go to:
https://www.hl7.org/certification/index.cfm
Retrieving a duplicate of remittance advice that was previously issued by a payer is a headache-inducing manual process that can involve the use of web portals, phone calls, faxes and emails. But implementing an HL7 Fast Healthcare Interoperability Resources (FHIR®) Application Programming Interface (API) could change all that.

The HL7 Da Vinci Project has launched a Postable Remittance Advice Use Case with the goal of publishing an implementation guide (IG) for such an API next year. The API will support the request for a duplicate copy of previously issued remittance advice—paper or electronic—in real time to allow efficient, timely and accurate posting of payments.

Remittance advice is a document that healthcare providers receive from insurance companies after submitting a claim. It provides information on the payment status of the claim, including the amount paid, the patient’s responsibility and the reason for any denials or adjustments. The purpose of the remittance advice is to inform the healthcare provider of the remittance details and to allow them to reconcile their accounts and ensure that the payment is accurate.

Eliminating a Manual Process

Right now, payers can send remittance advice on paper or they can transmit it electronically using the ASC X12 835 standard. There are times when remittance advice is missing and a duplicate copy is needed, either by the billing provider or another entity. But requesting and receiving a copy is currently a cumbersome, manual process that can require many steps.

“By implementing FHIR-based postable remittance advice, provider software will include workflow functionality to request from a payer a duplicate, postable remittance advice in workflow and ingest the payer's response,” says Alix Goss, Da Vinci Project Management Office and senior consultant at Point-of-Care Partners. “Correspondingly, payers will be capable of automating the processes of receiving and responding to the requests. And clearinghouses will also support capabilities on behalf of their provider and payer customers.”
The automation of the process will be a significant time saver, eliminating the need to chase down missing remittance advice manually, adds Naomi Miao, manager, business operations at the software company athenahealth.

“To spread awareness and increase adoption of APIs to reduce manual workflows and enable automation, athenahealth decided to champion the development of a FHIR standard,” she says.

**Many Benefits**

Miao, who is serving as project co-lead, says the Postable Remittance Advice FHIR API would help cut costs and reduce the risk of human error caused by manual interaction. Benefits to providers and payers would include:

- Reducing days in accounts receivable
- Cutting the costs associated with manual processes
- Lowering the need for making phone calls or accessing various portals to retrieve remittance advice
- Gaining the ability to locate remittance advice matched up to payments in real time
- Simplifying the retrieval of missing remittance advice and streamlining the API integration process

The use case and related FHIR-based implementation guide will greatly simplify the process of getting a copy of an already issued remittance advice in its original format, Miao explains. If the remittance advice was previously issued electronically using the 835 format, the requester would get a copy of that 835 in its original format via the FHIR API. If the remittance advice was previously issued via paper, then the requester would get a PDF copy of that remittance advice in its original format via the API. The payer/clearinghouse also could send both 835 and PDF formats if desired.

The Postable Remittance Advice FHIR API is not intended to replace or modify the current X12 835 process. The API would neither corrupt nor impact the initial 835 transaction’s compliance with the current standard, Miao points out. The FHIR API would be used to search for missing remittance advice using payment or claim information, and then download a copy of the 835 or PDF remittance advice via the API.

“The new API will enable providers to more easily obtain a duplicate version of previously issued electronic or paper remittance advice to reduce their overall burden in reconciling their accounts receivable,” Goss explains.

**Get Involved**

A diverse group of participants, including Da Vinci members, recently began work on the new use case, meeting each Tuesday from 1–2 p.m. ET to help define how to apply FHIR, Goss says. Anyone from industry can join and participate in the use case conference calls.

“Those interested can initially participate in the requirements gathering, then decide their next level of engagement, including implementation guide testing and balloting, with all steps leading to the publication of the implementation guide specification,” she explains.

The timeline calls for starting with defining requirements, then conducting a FHIR gap analysis, working on the IG development and developing a test case and a reference implementation before conducting tests at the September HL7 FHIR Connectathon event. The implementation guide ballot—soliciting comments on refining the standard—is slated to start in January 2025, followed by ballot reconciliation. Publication is tentatively planned for May 2025.

More information is available at: [https://confluence.hl7.org/pages/viewpage.action?pageId=230557166](https://confluence.hl7.org/pages/viewpage.action?pageId=230557166)
The CARIN Alliance is a multi-sector group of stakeholders representing numerous hospitals, thousands of physicians, millions of consumers and caregivers, and an HL7 FHIR Accelerator program. We are committed to providing consumers and their authorized caregivers access to health information. Specifically, we are promoting the ability for consumers and their authorized caregivers to gain digital access to their health information via open Application Programming Interfaces (APIs) and the ability to use that information in any third-party application they choose.

By the CARIN Alliance PMO
CARIN Digital Insurance Card IG
In 2021, the CARIN Alliance began work on the CARIN Digital Insurance Card Implementation Guide (IG), which provides a set of resources that payers can display to consumers via a Fast Healthcare Interoperability Resources (FHIR®) API. The goal of the IG is to enable every provider, payer and insurance beneficiary in the United States to use a free and open standards-based digital insurance card.

We are excited to announce that the STU Update 1.1.0 to the CARIN Digital Insurance Card Implementation Guide with support for SMART Health Cards (SHC) and SMART Health Links (SHL) was recently published. SHC and SHLs will enable individuals to receive their health information and share it with others in a tamper-proof and verifiable digital form. They also provide a digital version of an individual’s clinical information that can be kept at the ready and easily shared with others when the need arises—using a QR code, mobile app or web browser. Together SHC and SHLs provide options that support multiple goals—from keeping a small amount of verifiable medical information close by to authorizing a trusted party to access their entire medical record. They empower individuals with secure, equitable, and privacy-preserving access to their clinical information. We expect payers to begin issuing digital insurance cards based on this specification in 2024.

We are also excited to announce that the SMART Health Cards and Links FHIR IG will go through the September 2024 HL7 Ballot Cycle. In the future, the CARIN Digital Insurance Card IG will point to the published SMART Health Cards and Links FHIR IG.

CARIN Blue Button® IG
The CARIN Consumer Directed Payer Data Exchange Implementation Guide (CARIN IG For Blue Button®) describes the CARIN for Blue Button® Framework and Common Payer Consumer Data Set (CPCDS), providing a set of resources that payers can display to consumers via a FHIR API to meet the CMS requirements related to the Patient Access API. The Interoperability and Prior Authorization Final Rule includes several important references to the CARIN IG for Blue Button that we will highlight as they are critical for implementers to understand.

- CMS updated its recommendation to move from STU 1.1.0 to STU 2.0.0. to meet the requirements of the Patient Access API.
- CARIN IG for Blue Button STU 2.0.0 includes dental and vision (vision as part of the professional and non-clinician profile).
- Oral and vision claims information is now required as part of the Patient Access API.
- CMS will also require that impacted payers move to US Core IG STU 6.1.0.

CARIN anticipates that there will be an updated version of the CARIN IG for Blue Button in the near future to include the guidance for the exchange of non-financial explanation of benefits (EOBs) to meet the CMS Interoperability and Prior Authorization Final Rule and will be upgrading to US Core 6.1.0. Both the CARIN Blue Button and US Core 6.1.0 IGs have profiles on five common profiles: Patient, Coverage, Practitioner, Organization, and RelatedPerson. We do not believe this upgrade will require major changes.

CARIN Consumer Facing Real Time Pharmacy Benefit Check (RTPBC) IG
Using the RTPBC IG, a patient can learn the cost of, and insurance coverage related to, medications they have been prescribed. Several states have recently passed or gone live with laws that will require health plans and insurers to provide comprehensive, real-time prescription drug cost and coverage data to patients and providers through standard APIs. Others have not yet gone that far but may look at outcomes in those states and adopt their own laws. CARIN held working sessions to discuss what updates might need to be made to the CARIN RTPBC IG to meet these requirements and the consensus was that implementing the current RTPBC IG would fulfill current state requirements. CARIN plans to stand up pilots over the next several months and already has seven organizations interested in participating. Please contact us if you would like to join.

The CARIN Alliance workstreams meet regularly. If you would like to engage please feel free to contact Ryan Howells (ryan.howells@leavittpartners.com) or Mark Roberts (mark.roberts@leavittpartners.com).
NextGen: Next General Tools for Genome-Centric Multimodal Data Integration in Personalized Cardiovascular Medicine

Cardiovascular disease is the most common cause of death in Europe, resulting in 3.9 million deaths annually. To effectively combat cardiovascular disease, we need to invest in personalized medicine, beginning with tailored approaches from prevention to diagnosis, monitoring and treatment of the disease. Personalized medicine is crucial in improving the quality of life of patients and reducing the burden of the disease. To develop effective personalized treatment, we need to create and utilize advanced analytical techniques that can connect information from multiple sources from clinical and imaging data to genomic markers.

NextGen’s goal is to address this challenge by building novel and synergistic tools, which enable portable multimodal, multiomic and clinically oriented research in high-impact areas of cardiovascular medicine. These tools will be aimed at a broad audience from researchers to healthcare professionals to innovators. NextGen aims to identify and overcome barriers to health data linkage, facilitating use cases which are too complex with existing technology. These tools will aid in providing faster diagnosis and consequently better treatments, benefiting patients and increasing their quality of life. NextGen ensures secure multi-jurisdictional phenotype and genomic data access aligned with initiatives including “1+ Million Genomes” and European Health Data Space, through its embedded governance framework and robust regulatory processes.

Multimodal data integration poses a significant challenge: data standardization alone is insufficient for research portability, as it is not intrinsically multimodal. To address the heterogeneity of health data formats and structures, the NextGen multimodal integration object (MMIO) allows the following:

- Conversion of the underlying constellation of multimodal formats into a user-defined harmonized AI/ML ready form
- Application of site-specific governance and regulatory requirements
- Embedded authentication, audit, and integrity functionality.

Then, the use of semantic techniques allows for extracting meaningful information from the data. NextGen aims to achieve true portability of multimodal, multiomic research in a secure, auditable, and compliant manner.

Standards will play an important role in NextGen. The FAIR principles (Findability, Accessibility, Interoperability, and Reuse of digital assets) will be foundational to NextGen utilizing HL7 Fast Healthcare Interoperability Resources (FHIR®) 5.0. Other medical standards will also be included in NextGen’s data centric architecture, like ISO 23903 Health informatics.

The NextGen kickoff meeting was on February 5-6, 2024 in the Utrecht Medical Center in the Netherlands. The coordinators of NextGen are Utrecht Medical Center and Queen Mary University in London (Technical Coordinator). Among the 21 partners of NextGen, in addition to HL7 Europe, there is MyData, and the European Society of Cardiology.

HL7 Europe’s part in NextGen is to facilitate the use of HL7 FHIR and the alignment of developed specifications and guidelines to the European Health Data Space.

More information about the project can be found in the project website: [https://www.nextgentools.eu](https://www.nextgentools.eu)

By Lilika Markatou, NextGen Deputy Project Manager for HL7 Europe
Vulcan Project 2023 in Review

The Vulcan Phenomics Exchange Project organized a Phenomics roundtable event in May, gathering over 100 participants from governmental agencies, consortiums, implementers companies, pharma companies and universities. The event goal was to highlight that phenotype data is separately coded outside the EHR, delaying diagnostics and decreasing diagnostic rates.

We brought together a group of stakeholders to discuss phenotypic-based use cases and interoperability challenges between different environments including research and clinical care. The session was intended for clinicians and researchers where detailed, computable, and individual-level phenotypic data is a core part of their use cases. Participants discussed challenges and needs, explored exciting approaches in a collaborative atmosphere.

Shahim Essaid, Project Co-Lead, has detailed the project’s goals and needs. “In order to realize the goal of leveraging the EHR to generate quality phenotypic data for clinical genetics, the projects need to:

• Grow our community and the project team to accelerate progress
• Identify and work with implementation partners and sites
• Increased participation in the HL7 FHIR processes (WG meeting, Connectathons, etc.).”

The Vulcan project is looking for more engagement for stakeholders in the community in this initiative. Meetings are held on the third Wednesday of the month at 7 am PDT (10am EDT): https://confluence.hl7.org/display/VA/Phenomics+Exchange+for+Research+and+Diagnostic+%28Phenotypic+Data%29+Project

The group aims to participate in the September HL7 FHIR 2024 Connectathon, and to have an informative ballot in May 25. The real need right now, however, is to grow the project in terms of feedback, code developers, etc.

Vulcan Adverse Events for Clinical Research

Vulcan’s Adverse Events for Clinical Research – FHIR Implementation Guides – Accelerator were published on April 30, 2004.

According to Mike Hamidi, Vulcan Operations Committee Co-Chair, “This accomplishment establishes a consistent approach to documenting and exchanging adverse events, aligning with clinical research requirements. This framework is adaptable for a range of stakeholders involved in either producing or utilizing this information...”

The Adverse Events Implementation Guides are available at the following links:

• AdverseEvents for Clinical Research Home Page - Adverse Event Clinical Research v1.0.1 (hl7.org)
• AdverseEvents for Clinical Research Home Page - Adverse Event Clinical Research R4 Backport v1.0.1 (hl7.org)
Argonaut CGM Project

**Standardizing Continuous Glucose Monitoring Data Exchange**

The Argonaut Project is developing an implementation guide for standardizing Continuous Glucose Monitoring (CGM) data exchange. This is an ongoing effort in collaboration with EHR vendors, CGM device manufacturers, and healthcare providers which addresses a specific challenge in diabetes care: the inconsistent formatting and transmission of CGM data across different systems.

Clinicians often struggle with retrieving, interpreting, and documenting CGM data from various proprietary platforms, a time-consuming process that impacts patient care. The *Argo CGM Write Implementation Guide* proposes a standardized HL7 Fast Healthcare Interoperability Resources (FHIR)-based approach for CGM data submission, aiming to streamline this process for endocrinologists and primary care providers managing diabetes patients.

**The Need for Standardized CGM Data Exchange**

Continuous Glucose Monitoring has become an integral part of diabetes management for many patients. However, the lack of standardization in CGM data exchange has created challenges for healthcare providers and patients alike. Currently, important clinical workflows, such as remote patient monitoring and in-person care, require clinicians to review and document CGM data. These processes are often time-consuming and prone to errors due to the diversity of data formats and exchange methods used by different CGM systems.

Diagram of CGM Data Exchange Challenges

By Josh Mandel, MD, Subject Matter Expert, The Argonaut FHIR Accelerator
Key Components of the Argo CGM Write Implementation Guide

To address these challenges, we’ve developed the Argo CGM Write Implementation Guide. This guide provides a standardized approach for sharing CGM data between different actors in the healthcare ecosystem. Let’s explore some key components:

User Stories

We’ve developed several user stories to guide our implementation:

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<tr>
<td>User Story 2</td>
<td>Goals: Provider connects patient’s CGM during visit. During clinic visit, using cloud-based platform.</td>
</tr>
<tr>
<td>User Story 3</td>
<td>Goals: Patient shares CGM data with research study. Multi-platform study, using cloud-based platform.</td>
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These stories help ensure our standard addresses real-world needs and use cases.

Actors and Workflow

The implementation guide defines two primary actors:

1. CGM Data Submitter: typically a software system managing CGM data, often including a patient-facing app
2. CGM Data Receiver: a system that receives and stores the submitted CGM data, often an EHR

Establishing Connections

The guide provides detailed instructions for establishing connections between CGM apps and EHRs, covering both patient-initiated and provider-initiated scenarios. This flexibility ensures that the standard can be implemented in various clinical settings and workflows.

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Our nominal workflow outlines the process from app authorization to data submission, ensuring secure and standardized data exchange.

Continued on page 32
CGM Data Submission

Bundles
We’ve defined a standard format for CGM data submission using FHIR bundles. These bundles can include various types of data, such as CGM summary reports, sensor readings, and device information.

Standing Orders
To streamline the data submission process, we’ve introduced the concept of standing orders. These allow data receivers (like EHRs) to specify their preferences for data submission, including frequency and types of data required.

SMART Health Links for CGM Data Sharing
In addition to direct system integrations, we’ve incorporated SMART Health Links as a complementary method for sharing CGM data. This feature allows for easy sharing of selected CGM data subsets with various parties, providing flexibility for scenarios where tight integration isn’t feasible or desired.
Current Status and Next Steps

The Argo CGM Write Implementation Guide is currently in draft form, and we’re actively working with the community to test and refine it. We’re excited about the progress we’ve made, but we recognize that there’s still work to be done to ensure the guide meets the needs of all stakeholders.

Get Involved!

We invite the healthcare community to participate in this important initiative. Your insights and experiences are crucial in shaping a standard that works for everyone. Here’s how you can get involved:

1. Review the draft implementation guide
2. Participate in upcoming HL7 FHIR connectathons
3. Provide feedback on the proposed standards
4. Share your use cases and requirements

To learn more or to participate, please reach out to the Argonaut CGM project team at https://confluence.hl7.org/display/AP/FHIR+Write+Call+notes, We’re also tracking adoption levels and would appreciate any information you can share about where Argo CGM appears on your product roadmap.

Together, we can create a more interoperable healthcare ecosystem that benefits providers and patients alike. Join us in this crucial endeavor to standardize CGM data exchange and improve diabetes care workflows!

HL7 Welcomes New Members

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Prestigious award recognizes work guiding evolution of FHIR

HL7® Da Vinci Project Names 2023 Community Champions

This Spring, seven healthcare technology experts were named as 2023 HL7® Da Vinci Project Community Champions.

The individuals recognized for this prestigious honor represent the diverse membership of the HL7 Da Vinci Project, a collaborative multi-stakeholder effort including health plans, hospital systems, accountable care organizations (ACOs) and technology vendors. This is the fourth year in which the HL7 Da Vinci Project has recognized innovative leaders in health IT who are helping to guide the evolution of the HL7 Fast Healthcare Interoperability Resources (FHIR®) standard.

As a designated HL7 FHIR accelerator program, the Da Vinci Project is a private sector consortium dedicated to improving the healthcare delivery system by accelerating interoperability standards to support value-based care, reduce administrative burden, automate workflow and improve provider teams’ ability to impact health outcomes. The Da Vinci Project leadership created the Community Champions Program to recognize and celebrate the talented problem solvers advancing interoperability within the industry. The Community Champion Program recognizes individuals who display the unique traits of “industry above self, a passion for making the healthcare system work better, supporting others, and promoting change.”

The awards were announced at the HL7 May Working Group Meeting in Dallas and at Da Vinci’s virtual May Community Roundtable, where Anna Taylor, HL7 Da Vinci Project Steering Committee Chair and the Associate Vice President, Population Health and Value Based Care for MultiCare Connected Care, presented the awards. Taylor was recognized as a 2020 Community Champion in the inaugural class of health IT professionals who were given this award.

“The dedicated professionals we recognize were nominated by their peers and selected by a committee of prior Champions based upon their day-to-day contributions and exemplary achievements to the Da Vinci Project in 2023,” Taylor said.

“ THEIR EFFORTS ARE HELPING DA VINCI TO SIGNIFICANTLY TRANSFORM THE HEALTHCARE LANDSCAPE BY BUILDING A STANDARDS-BASED FOUNDATION TO ENABLE REAL-TIME DATA EXCHANGE, AUTOMATING PROCESSES THAT REDUCE FRICTION, RESULTING IN TIME AND COST SAVINGS THAT ULTIMATELY BENEFIT PATIENTS. AS WE RECOGNIZE THEM, WE ENCOURAGE OTHERS TO JOIN US ON THIS INSPIRING JOURNEY OF INNOVATION,” she said.

By Leslie Amorós, Communications Lead, HL7 Da Vinci Project, and Senior Communications Consultant, Point-of-Care Partners
The HL7 Da Vinci Project’s 2023 Community Champions

Karen Ashton, Director, Population Health Digital Solutions, MultiCare Health System

“The Da Vinci Project is an industry-wide collaboration to advance technology standards that enable seamless, value-based care for our patients.”

Daniel Cawood, Senior Manager, Product Management, MCG Health

“Da Vinci is important because of the community aspect, plain and simple. This is a community of people working together to make healthcare better; you can get specifications from Da Vinci, but more importantly you can get insights from people making those specifications work.”

Naomi Miao, Business Operations Manager, athenahealth

“It’s been so rewarding and exciting contributing to Da Vinci’s mission driving automation, standardization, and interoperability for both clinical and revenue cycle business needs across the industry. Our efforts are critical to alleviating clinicians’ administrative burden and allowing them to focus on patient care. My organization, athenahealth, and I have been pleased to be part of this important work and are grateful to Da Vinci for providing a forum for like-minded individuals to collaborate, share ideas, and drive standardization together.”

Sreekanth Puram, Chief Technology Officer, Mettle Solutions

“Da Vinci is a game-changer for payers and software vendors, forging tools that sculpt seamless data pathways, enhancing our ability to manage care efficiently and innovate boldly.”

Hans Buitendijk, Senior Director, Interoperability Strategy, Oracle Health

“Da Vinci is paving the way to advance seamless integration between providers and payers at scale reducing provider burden, improving clinical decision making, and increasing patient satisfaction. That’s big. That’s critical.”

Alexandra Mugge, Chief Health Informatics Officer, and Director of Health Informatics and Interoperability Group (HIIG), Centers for Medicare & Medicaid Services

“Interoperability isn’t only about technology and exchanging data between systems. It’s about alignment and a community drive to improve patient care. That’s what Da Vinci is – a community dedicated to improving data standards, facilitating data sharing, and driving innovation to enhance the patient experience.”

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HL7 Benefactor Members

[Logos of various companies and organizations]
Newly Certified HL7 Specialists

Congratulations to the following people who recently passed an HL7 Certification Exam!

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- César Flores Carrera
- Benjamin Graham
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- Jessa Marie Aperin
- Nandan Savalia
- Pallavi Metuku
- Indhuja Narasimhan
- Rodrigo Rocha Alves Pio
- Hemanth Ande

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- Julia Flis
- Thomas Debertshäuser
- Brian Fung
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- Morley Elden Joseph Jahnke Rangel
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Certified HL7 CDA R2.0 Specialist

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Virtual Event

January 2025
January 2025 Working Group Meeting
Virtual Event

January 14-16, 2025
HL7 FHIR Connectathon
Eastern Time
Virtual Event

March 3-6, 2025
HIMSS25
Las Vegas, Nevada

May 10-16, 2025
May 2025 Working Group Meeting and HL7 FHIR Connectathon
Madrid, Spain

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